

AUG 15 2006

REMARKSI. Status of Claims

Claims 1 - 16 are pending. Favorable reconsideration of the remaining claims is respectfully requested in light of the following remarks. Applicant requests entry of this Amendment which overcomes the outstanding rejections, and places the claims in condition for allowance.

II. The Claims 1-10 are patentable over the Knutsson and Golden et al. references

In the Office Action the Examiner rejected claims 1-10 under 35 U.S.C. §103(a) over the U.S. Pub. No. 2001/0011780 to Knutsson in view of the U.S. Patent No. 5,317,037 to Golden et al. The Applicant contends that all the claims are patentable over the Knutsson and Golden et al. references and requests withdrawal of the rejection under 35 U.S.C. §103(a).

Claim 1 has been amended in response to the newly presented Examiner's response, as set forth at pages 7-8 in the Office Action. Claim 11 has been amended to recite that sugar and glass fibers are fed into a preform mold having a predetermined shape of a muffler where the sugar comprises approximately 2-10 %, by weight, of the preform. Support for this amendment is found in the specification, at least at paragraph [0025].

The Examiner has admitted that the Knutsson reference does not teach using sugar as a binder material for forming a muffler preform. The Golden reference was cited as allegedly teaching the use of sugar as a glass binder for forming a glass fiber composite. The Examiner concluded that it would have been obvious to use sugar as the binder in the method of Knutsson in order to produce a biodegradable material.

In response to this rejection, Applicant respectfully directs the Examiner's attention to the amended independent claim 1 and submits that claim 1 defines a method of forming a muffler preform that is not taught or suggested by the Knutsson and Golden references, either alone or in combination.

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In particular, the Knutsson reference does not teach or suggest a method of forming a preform, as claimed in amended claim 1, where a binder is placed on the internal walls of a preform mold prior to the addition of the continuous glass fibers. The Knutsson reference specifically teaches the addition of a powdered binder with the continuous glass strands.

The Golden reference describes a non-analogous melt-moldable product comprised mainly of sugar-based compositions that disintegrate in the presence of moisture and decompose or degrade to produce components that are inert or beneficial to the ground. (See, e.g., column 2, lines 24-27 and 48-52). In the Golden product, only a small amount of fibers are present and such small amount of fibers acts as a "reinforcement" for the sugar-based product. The Golden product is composed mainly of a water-soluble sugar material, as clearly shown by the percents, by weight, listed in each example. In the only example (Example 10) that includes glass fibers, the glass fibers only constitute 3.8 %, by weight, of the biodegradable product.

In contrast, the present invention provides a muffler preform comprised of sugar-coated fibers where the amount of sugar is no greater than about 10%, by weight. There is no teaching or suggestion in either the Golden or Knutsson reference of using sugar as a binder for a non-biodegradable preform for a muffler.

As set forth in the MPEP (*See, e.g., Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, § 2144.08), when applying 35 U.S.C. § 103, the cited references must be considered as a whole, must suggest the desirability and thus the obviousness of making the combination, and must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182 187 n.5 (Fed. Cir. 1986).

Applicant respectfully submits that to evaluate the obviousness or non-obviousness of an invention, both the prior art reference(s) and the claimed invention as a whole must be considered. (*See, e.g., Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2141.02 citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983) and *Schenck v.*

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Nortron Corp., 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)). Applicant respectfully submits that the Golden reference would lead one of skill in the art away from using sugar as a binder in the Knutsson preform, and as such, one of skill in the art would not arrive at the presently claimed invention in claim 1 based on the teachings of the Golden reference.

Additionally, Applicant submits that there is no motivation for one of skill in the art to arrive at the invention currently recited in claim 1 based on the teachings of the cited references. To establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art. Also, to modify the reference or combine the references' teachings, there must be a reasonable expectation of success, and the prior art references must meet all of the claim limitations. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2142). One of skill in the art simply would not be motivated to arrive at the presently claimed method of forming a preform for a muffler that includes feeding sugar and glass fibers into a preform mold having a predetermined shape of a muffler, heating the preform mold to a temperature sufficient to melt the sugar so that the melted sugar adheres to the glass fibers and forms sugar-coated glass fibers, and cooling the preform mold to bind the sugar-coated glass fibers together and form the preform as claimed in amended claim 1.

The Golden reference specifically teaches a sugar-based biodegradable product and the Knutsson reference is silent as to the use of sugar as a binder. Without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

In view of the above, Applicant respectfully submits that claim 1 is non-obvious and patentable over the cited references and the Examiner is respectfully requested to withdraw this rejection.

The amendment to claim 1 is necessitated by the Examiner's newly stated arguments, and entry of this amendment places no burden on the Examiner to conduct any further searching or examination. Rather, the amendment to claim 1 furthers the prosecution and places the claim in condition for allowance. Also, Applicant

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respectfully submits that claim 1 is patentable over the cited references and the Examiner is respectfully requested to withdraw this rejection.

In addition, dependent claims 2-10 are either directly or indirectly dependent upon claim 1, which, as discussed above, is not taught or suggested by Knutsson and Golden, either alone or in combination. Therefore, Applicant submits that claims 2-10 are also not taught or suggested by the combination of Knutsson and Golden and should be allowable for at least the same reasons as set forth above.

III. Claim 11 is patentable over the Knutsson reference and the newly cited Hill et al. reference under 35 U.S.C. §103(a)

In the Office Action the Examiner rejected claim 11 under 35 U.S.C. §103(a) over the Knutsson reference in view of the U.S. Patent No. 3,286,004 to Hill et al. The Applicant contends that claim 11 is patentable over the Knutsson and Hill et al. references and requests withdrawal of the rejection under 35 U.S.C. §103(a).

Claim 11 has been amended in response to the newly presented Examiner's interpretation, at page 6 in the Office Action, that "unbound" means "not fully immersed in the binder material." The Applicant respectfully points out that the fiber material on the surface of the muffler preform is not "... 'unbound' fiber material encapsulated by 'bound/immersed' fiber material." Rather, in the present invention, the "unbound" fibers are located (i.e., encapsulated) on the interior of the preform and the "bound fibers" form an encapsulating shell around the "unbound" inner fibers.

Support for this amendment to claim 11 is stated in the specification, at least at paragraphs [0014], [0027] and [0028], which describe that the binder is present within the shell and is not located throughout preform. In addition, the unbound fibers are internal with respect to the shell and are not located adjacent to the internal walls of the preform.

The Examiner has admitted that the Knutsson reference does not teach the step of placing the binder in the preform mold prior to adding the continuous glass strands to the preform mold. In an attempt to show such step, the Examiner has newly cited the Hill et al. reference.

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The Hill et al. reference describes a foam core surrounded by a fiberglass reinforced resin shell or skin. The Hill et al. reference teaches a "void-free structure" where the fiberglass is to be compacted against the resin material. (See column 1, line 60 to column 2, line 3).

The Hill et al. reference does not supply the deficiencies of the Knutsson reference since there would be no motivation to look to a material having a foam core surrounded by a fiberglass skin as a way to make an encapsulating shell of "bound" fibers that forms an integral, substantially contiguous surface (i.e., shell) that encapsulates the unbound fibers. Those skilled in the art would not look to the Hill et al. foam material where the inserted foam is used to compact fiberglass against a resin in a mold as a suitable method to make a fibrous preform for a muffler having unbound inner fibers with a "fluffed-up" or wool-like appearance, as described at paragraph [0025].

As such, the amendment to claim 11 is necessitated by the Examiner's newly stated interpretation, and entry of this amendment places no burden on the Examiner to conduct any further searching or examination. Rather, the amendment to claim 11 furthers the prosecution and places the claim in condition for allowance. Also, Applicant respectfully submits that claim 11 is patentable over the cited references and the Examiner is respectfully requested to withdraw this rejection.

IV. Claims 12, 13, 15 and 16 are patentable over the Knutsson reference in view of the newly cited Hill et al. reference and further in view of the Golden reference under 35 U.S.C. §103(a)

In the Office Action the Examiner rejected claims 12, 13, 15 and 16 under 35 U.S.C. §103(a) over the Knutsson reference in view of the Hill et al reference and further in view of the Golden reference. Claims 12, 13, 15 and 16 depend from claim 11. As such, these claims should be allowable for at least the same reasons as set forth above. Applicant respectfully directs the Examiner's attention to the amendments made above to claim 11 and submits that amended claim 11 defines a method of forming a preform that is not taught or suggested by Knutsson, Hill and/or Golden

references.

The Knutsson reference teaches away from placing a binder on the internal walls of a preform mold prior to the addition of the continuous glass fibers. In addition, the Knutsson reference does not teach or suggest forming an encapsulating shell of bound glass fibers surrounding unbound glass fibers. Applicant submits that blowing the binder into the preform shell with the glass strands, as taught by Knutsson, results in a distribution of the binder throughout the internal cavity of the preform. Any heating of the Knutsson preform with such a distribution of binder would result in the glass fibers binding to each other throughout the preform. As a result, the preform of Knutsson would not form an encapsulating shell of bound fibers surrounding unbound glass fibers, as described in claim 11.

Additionally, neither the Hill nor Golden reference supplies the admitted deficiencies of the Knutsson reference. The Hill and Golden references are silent as to the placement of a binder on a preform shell prior to adding continuous glass fibers to form a preform where the binder is present within the shell and is not located throughout the preform, and the unbound fibers are internal with respect to the shell and not located adjacent to the internal walls of the preform mold.

In view of the above, Applicant submits that claims 12, 13, 15, and 16 are not obvious over Knutsson and/or Golden and respectfully request that this rejection be reconsidered and withdrawn.

V. Claim 14 is patentable over the Knutsson reference in view of the newly cited Hill et al. reference, further in view of the Golden reference, and further in view of the Kirk reference under 35 U.S.C. §103(a)

In the Office Action the Examiner rejected claim 14 under 35 U.S.C. §103(a) as being unpatentable over the Knutsson reference in view of the Hill et al. reference, further in view of the Golden et al. reference, and still further in view of U.S. Patent No. 6,319,444 to Kirk.

Because claim 14 depends from claim 11, which is neither taught nor suggested by Knutsson, as discussed above, and because neither Golden nor Kirk make up for

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the deficiencies of Knutsson, claim 14 is submitted to be non-obvious and patentable.

The Examiner had admitted that the Knutsson, Hill and Golden references do not teach heating the preform mold prior to placing a binder material on the internal walls of the preform mold.

The Kirk reference was cited as assertedly disclosing preheating a preform mold prior to the molding process. The Examiner concluded that it would have been obvious to use the teachings of Kirk in the method of Knutsson in view of the teachings of Hill and further in view of Golden to reduce the wait time required to heat the mold.

For at least the reasons given above with respect to the rejection of claims 12, 13, 15, and 16 over Knutsson in view of Hill and further in view of Golden, Applicant submits that claim 14 is not obvious over the Knutsson reference in view of the Hill et al., Golden, and Kirk references.

In particular, the Knutsson reference neither teaches nor suggests a method of forming a preform that includes placing a binder on internal walls of a preform mold prior to the addition of continuous glass strands, adding the continuous glass strands to the preform mold, and curing the binder to bond glass fibers positioned adjacent to the internal wall together so that the bonded glass fibers form an encapsulating shell surrounding unbound glass fibers within the preform.

Additionally, Applicant submits that none of the Hill et al., Golden or Kirk references supplies the deficiencies of the Knutsson reference. The Hill et al. reference describes a foam core surrounded by a fiberglass reinforced resin shell or skin such that the Hill et al. material is a "void-free structure" where the fiberglass is to be compacted against the resin material. The Golden reference specifically teaches a sugar-based biodegradable product and the Knutsson reference is silent as to the use of sugar as a binder. The Kirk reference describes a method for making a molded wool product. Without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

Applicant submits that claim 14 is not obvious over the Knutsson reference in view of the Hill et al. Golden and Kirk references, either taken alone or in

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combination, and respectfully request reconsideration and withdrawal of this rejection.

VI. Conclusion

Claims 1-16 are in proper form for allowance. The invention, as defined in the pending claims, is neither disclosed nor suggested by the references of record.

Accordingly, Applicant respectfully requests entry of this timely amendment to the claims, reconsideration and withdrawal of the rejections of record, and allowance of all claims.

VII. Request for Telephone Interview

As a final matter, if the Examiner has any suggestions concerning different claim phraseology that, in the opinion of the Examiner, more accurately defines the present invention, Applicant's attorney or agent requests the courtesy of a telephone interview at the Examiner's earliest convenience to discuss the application.

Applicant's attorney or agent may be contacted at (740) 321-7168.